Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

Phosphorus Mixing Zone

When DEQ considers authorizing a mixing zone that exceeds 25% of the volume of the receiving water, a mixing zone study may be performed to learn more about the effluent plume. In this case the Sandpoint ~~is~~ requested~~ing~~ an annual mixing zone of 60%~~s~~ for phosphorus which prompted a mixing zone study using the Cormix model. ~~of 47% from June – September and 60% from October – June, so a study was performed.~~ The outcome of the study using the proposed 5mgd design flow indicated that during the low flow timeframe, conditions would exist that are contrary to the WQS mixing zone rules (IDAPA 58.01.02.060). Briefly these conditions are: during low flow the effluent plume hugs up to~~almost~~ a mile of shoreline; the plume encompasses ~~almost~~ greater than 25% the ~~entire~~ width of the river; and the outfall is located in an area of poorly mixed slack water. Due to the lack of phosphorus effluent monitoring data and comments received during the first public comment period, an additional study was performed using a CE-QUAL-W2 model to examine downstream effects of the proposed phosphorus effluent limits. Comments also prompted an additional Cormix model run to examine the mixing zone for toxic pollutants which resulted in the revision of effluent limits for mercury and the addition of limits for ammonia and chlorine. Results of these modeling efforts can be requested from DEQ.

Commented [NB1]: While I'm sure these statements accurately describe the results of the modeling that Mark S. did in 2013, we now more about the ambient velocity than we did at that time. I think the "slack water" statement is still accurate, but I'm not so sure about these other statements.

To address phosphorus mixing zone issues Sandpoint requested two compliance schedule options, the first to address the outfall location and/or modification and the second to allow for a new regional plant to be constructed with a higher level of treatment that would accept Kootenai Ponderay Sewer District effluent.

Compliance Schedules

Both compliance schedule ~~described below~~ options provide~~s~~ the permittee a reasonable amount of time to achieve the final effluent limits and/or compliance with mixing zone rules as specified in the permit and this certification. At the same time, the schedules ensure~~s~~ that compliance with the final effluent limits and mixing zone rules are~~is~~ accomplished as soon as possible.

1. The permittee must comply with all effluent limitations and monitoring requirements in Part I.B., I.C. and I.D. beginning on the effective date of the permit, except those for which a compliance schedule is specified in Part I.C of the final permit.
2. The permittee must achieve compliance with the applicable final effluent limitations as set forth in Part I.B. (Table 1) of the permit and the final mixing zone allowance and applicable outfall modification requirements, not later than:
    a. Five (5) years after the effective date of the final permit~~,~~ for Option 1: Outfall Modification/Relocation; or
    b. Ten (10) years after the effective date of the final permit for Option 2: Regionalization.

c. Both Option 1 and 2 compliance schedules shall be followed if the permittee chooses to regionalize, discharge through their existing outfall and maintain their current phosphorus load.

3. While the schedules of compliance specified in Part I.C are in effect, the permittee must complete interim requirements and meet interim effluent limits and monitoring requirements as specified in Parts I.C and I.D of the permit.

4. All other provisions of the permit, except compliance with mixing zone rules (Option 1) and compliance with final limits and mixing zone rules (Option 2, Table 2) of this certification must be met after the effective date of the final permit.

Compliance Schedule Option 1: Outfall Modification/Relocation

It may be possible to improve the mixing zone~~is~~ situation without reducing the amount of phosphorus discharged by modifying or relocating the outfall. Option 1 allows the permittee time to develop an outfall scenario that meets WQS. The following work shall be completed unless the permittee, through regionalization or plant upgrade, can meet a 25% phosphorus mixing zone in the Pend Oreille River.

Interim Requirements for Outfall Modification/Relocation Compliance Schedule

1. By three (3) years after the effective date of the final permit, the permittee must provide for DEQ approval, a preliminary engineering report (PER) that examines how to improve mixing and meet WQS by modifying or relocating the outfall pipe or implementing plant upgrades sufficient to meet a 25% mixing zone for phosphorus. This report must include a modeling study using the Cormix model of the phosphorus plume that demonstrates that proposed improvements will meet WQS. Baseline data used in DEQ's initial study shall be utilized as much as possible to achieve comparable results. An alternative to modeling is to conduct a DEQ reviewed and approved dye study (or equivalent) at the new discharge location. The Cormix and dye study shall include analyses of both low and high flow plumes. This information shall be presented as images superimposed over an aerial photo of the river. The report shall include the proposed orientation of the pipe, specific location (if relocated) or plant upgrades and includes materials, costs, and a schedule for completion of the work.

2. By four (4) years after the effective date of the final permit, final plans and specifications for the modifications proposed in the PER shall be submitted to DEQ for approval. In addition, all permits, easements or other approvals necessary to complete the work shall be obtained.

3. By five (5) years after the effective date of the final permit, the permittee must have completed the outfall modifications, relocation or plant upgrade as approved by DEQ and meet WQS.

The phosphorus mixing zone during this compliance schedule shall remain 47% from June 1st through September 30th and 60% from October 1st through May 31st. By the end of the 5 year

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Commented [NB2]: I'm assuming I should propose TP limits based on a 25% mixing zone as the endpoint for the regionalization option. A change in the mixing zone doesn't mean much unless it's reflected in the limits.

TP limits based on a 25% mixing zone would be:

June – September
AML: 33 lb/day
AWL: 42 lb/day

October – May
AML: 40 lb/day
AWL: 52 lb/day

Commented [JuneB3]: Yes, 25% MZ for regionalization option.

compliance schedule the permittee shall have a discharge consistent with the mixing zone rules of the WQS.

Compliance Schedule Option 2: ~~with~~ Regionalization ~~Option~~

Sandpoint WWTP and Kootenai Ponderay Sewer District have requested a regionalization option be added to both their new permits which would allow them time to examine the feasibility of this direction, to plan the facility and design and construct a regional wastewater treatment plant. ~~This option is likely to include a relocated discharge pipe.~~

Pursuant to IDAPA 58.01.02.400.03, DEQ may authorize compliance schedules for water quality–based effluent limits issued in a permit for the first time. Federal regulations at 40 CFR 122.47(b) allow for alternative schedules of compliance, in which an NPDES permittee may terminate the discharge of pollutants from the permitted source rather than continuing to operate and meet permit requirements. In this case, while IDEQ expects there will be a permitted discharge of treated sewage from a POTW to the Pend Oreille River for the foreseeable future, the existing WWTPs for the City of Sandpoint and the Kootenai-Ponderay Sewer District will~~may~~ be decommissioned and replaced with one~~a~~ new, regional WWTP. The regional plant would have the ability to meet a 25% mixing zone for phosphorus and therefore resolve mixing zone issues associated with the current treated effluent. Therefore, DEQ authorizes a compliance schedule that would allow Sandpoint WWTP to discharge phosphorus without outfall modifications/relocation requirements until a regional plant is built and operational per the compliance schedule below.

~~Sandpoint WWTP cannot immediately achieve compliance with the phosphorus effluent limits resulting from a 25% mixing zone, nor can the existing outfall achieve the mixing necessary to allow for the 47 – 60% and mixing zones for phosphorus;, which would result in effluent limits that could be achieved immediately. tTherefore, DEQ authorizes a compliance schedule and interim requirements as set forth below. This compliance schedule provides the permittee a reasonable amount of time to achieve the final effluent limits as specified in the permit. At the same time, the schedule ensures that compliance with the final effluent limits is accomplished as soon as possible.~~

Table 2. Interim Limits and Mixing Zone Compliance for Option 2

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone
Phosphorus Load (June-September)	lb/day	61~~96~~	79~~125~~	47% of the 30Q10 flow (8,090cfs) without outfall modification/relocation
Phosphorus Load (October-May)	lb/day	96	125	60% of the 30Q10 flow (8,090cfs) without outfall modification/relocation

Table 3. Final Limits and Mixing Zone Compliance for Option 2

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Percent Mixing Zone

Commented [NB4]: I'll let Brett speak for himself on this, but I thought he said that the City may build a new WWTP independently of KPSD, and if they do that, "regionalization" isn't the right word.

Commented [JuneB5]: I looked at my notes and the problem with not having KPSD as part of this regionalization option is that there will be no elimination of one discharge and that was part of the basis for allowing the 10 year compliance schedule. Brett also said that the new plant would discharge 87lbs/day to match their current TP so they can retain that load. Given that, we are back to having their outfall improved and the shorter compliance schedule. So this option is not available unless they take in KPSD. At least that is where I understood we ended on this.

Commented [NB6]: I think this needs to be written to cover both of the possible outcomes. Either they improve treatment so they can meet limits based on a 25% (or smaller) mixing zone, or they move their outfall and improve mixing such that they have the larger mixing zones necessary to continue discharging the amounts of phosphorus they've discharged in the past.

Commented [JuneB7]: What I was trying to do is have the CS is written as two options. If they want option 1 then they read page 1 only. If they want option 2 then they skip to page 2. But I didn't follow through with the thought, I've tried to fix it up.

Commented [NB8]: Is it DEQ's judgment that Sandpoint can't comply with the 61 lb/day average monthly limit immediately? That was the performance-based limit that I'd calculated from their existing data, meaning, I think they **can** comply with this limit immediately. We should discuss this.

Phosphorus Load (June-September)	lb/day	33	42	25% of the 30Q10 flow (8,090cfs)
Phosphorus Load (October-May)	lb/day	40	52	25% of the 30Q10 flow (8,090cfs)

Interim Requirements for Regionalization Compliance Schedule

1. By one (1) year after the effective date of the final permit, the permittee must demonstrate to EPA and DEQ that funding for a new facilities plan has been secured.

2. By two (2) years after the effective date of the final permit, the permittee must notify EPA and DEQ of their decision of whether to regionalize wastewater treatment in the areas currently served by the City of Sandpoint WWTP and the Kootenai-Ponderay Sewer District WWTP, resulting in a single point of discharge to the Pend Oreille River. The decision to regionalize shall be evidenced by a firm public commitment satisfactory to the EPA and IDEQ.

    a. If the decision is to not regionalize or the regional plant will not meet a June-September 25% phosphorus mixing zone, ~~final limits must be met at this time and the requirements of the Phosphorus Mixing Zone section~~ Compliance Schedule Option 1 of this certification must be initiated and completed according to the schedule specified in Option 1.
    b. If the decision is to regionalize, the permittee must comply with the following requirements:

3. By three (3) years after the effective date of the final permit a facility plan shall be submitted to DEQ for review and approval. The facility plan shall include outlining estimated costs and schedules for completing a regional wastewater treatment plant and implementation of technologies to achieve final effluent limitations. This schedule must include a timeline for pilot testing. ~~It shall also examine how to improve mixing and meet WQS by modifying or relocating the outfall pipe for the new facility. If the pipe is to be relocated either to a different location in the Pend Oreille River (not just an extension of the existing pipe) or to a different waterbody the phosphorus mixing zone requirements 1-3 of this certification are waived.~~

4. By four (4) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a progress report on funding for the new facility. Copy of notice of bond approval or notice of judicial confirmation is acceptable.

5. By five (5) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that design has been completed, approved by DEQ.

6. By six (6) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a notice that bids for construction have been awarded to achieve final effluent limitations.

7. By seven (7) and eight (8) years after the effective date of the final permit, the permittee must provide EPA and DEQ with brief progress reports of construction as they relate to meeting the compliance schedule timeline.

8. By nine (9) years after the effective date of the final permit, the permittee must provide EPA and DEQ with written notice that construction has been substantively completed on the facilities to achieve final effluent limitations.

9. By ten (10) years after the effective date of the final permit, the permittee must provide EPA and DEQ with a written report providing details of a completed start up and optimization phase of the new treatment system and must achieve compliance with the final effluent limitations of Part I.B.

Mixing Zones

Pursuant to IDAPA 58.01.02.060, DEQ authorizes the mixing zones summarized in Table 3 for the current outfall location.

Table 3: Mixing Zones

Pollutant	**Mixing Zone (% of critical flow volumes of the Pend Oreille River)**
ammonia	
arsenic	
chlorine	
chromium III	
chromium IV	
copper	
cyanide	
lead	
mercury	
nitrate + nitrite	
zinc	
~~Phosphorus, June - September~~	~~74 Interim Limit~~
Phosphorus, June - September	47 (Final Limit per Option 1)
Phosphorus, October – May	60 (Final Limit per Option 1 and 2)
Phosphorus, June-September	25 (Final Limit per Option 2)

Commented [NB9]: See my comment above; I think they can meet the 61 lb/day limit (based on a 47% mixing zone) immediately.